20000622.ba v02_n931.bam.20000622

>From ???@??? Thu Jun 22 00:43:13 2000 -0500
Message-Id: <200006220541.e5M5fdM10585@sco.theporch.com>
Date: Thu, 22 Jun 2000 00:41:18 CDT
From: Old Tube Radios <boatanchors@theporch.com>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: BOATANCHORS digest 2931

BOATANCHORS Digest 2931

Topics covered in this issue include:

1) Re: 866 versus 3B28 Rectifier Tubes
   by thompson@mindspring.com
2) The case for transconductance testing (long)
   by Arden Allen <gumbear@pacbell.net>
3) The case for transconductance testing (long) -- correction
   by Arden Allen <gumbear@pacbell.net>
4) RE: 866 versus 3B28 Rectifier Tubes
   by "Ed Sieb" <sieb@sympatico.ca>
5) Re: 866 versus 3B28 Rectifier Tubes
   by thompson@mindspring.com
6) Need "S" Meter for 75A3
   by "Andrew E. Howard, Sr." <sweetbay@compuserve.com>
7) RS-6
   by saipan59@juno.com
8) The case for transconductance testing (long) -- more correction
   by Arden Allen <gumbear@pacbell.net>
9) FS Measurements Corp Grip Dip meter
   by Michael Crestohl <mc@sover.net>
10) Re: 866 versus 3B28 Rectifier Tubes
   by "Barry L. Ornitz" <ornitz@tricon.net>
11) 5,000 WATT SHIP TO SHORE TRANSMITTER NEEDS HOME
   by "David L. Stinson" <arc5@ix.netcom.com>
12) Transconductance versus Emission Testing
   by "Barry L. Ornitz" <ornitz@tricon.net>
13) 10AM open at 0300 to 0400 (11PM to midnight EDT) tonight
   by thompson@mindspring.com
14) NC300 Question
   by Wally Gibbons <rockwall@sourceoneinternet.com>
15) 500Kc Lives!
   by Dick Dillman <ddillman@igc.org>
16) Re: Transconductance versus Emission Testing
   by Arden Allen <gumbear@pacbell.net>

From: thompson@mindspring.com

Message-ID: <002501bfdbbd$f1a53060$d61045cf@default>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: 866 versus 3B28 Rectifier Tubes
Date: Wed, 21 Jun 2000 16:18:58 -0400

I have been using HV supplies since 1957 and have used the 816, 866, 872, and 3B28. In a conversation with the designer of the Henry 2K series of amplifiers (they used the 3B28). He told me that the main advantage of the 3B28 type over the 866 and 872 was elimination of hash. He also said they operated over a wider range of temperatures. The 3B28's in my Henry 2K lasted a long time in extensive use (1968 to 1983) until I replaced them with solid state versions from United Page in New Jersey. No mention in any notes I ever saw (from RCA or GE) about shorter tube life with 3B28's. In both the 866 type and the 3B28 you needed a short warm up to get the tubes ready for HV....not so with the 3B28SS replacement and the SS version puts out 100+ more volts which make the 3-400/3-500 run closer to their 3500V optimum.

Dave K4JRB

From: Edward J Knobloch <k4pf@juno.com> found the following

> While browsing thru a copy of the Collins Radio Co.
> "Fundamentals of SSB" (15 July 1957), I was surprised
> by the conclusion of the following paragraph (page 7-14):
>
> "Vacuum rectifiers can be used for small, low-voltage
> power supplies which have relatively constant load.
> Gas-type rectifiers are required where better regulation
> is necessary. The mercury-vapor rectifier
> is the most common gas-type rectifier used because
> it has long life when properly operated. Operating
> a mercury-vapor rectifier above or below its rated temperature
> changes the vapor pressure in the tube and reduces
> its peak-inverse-voltage capability, making the rectifier
> susceptable to arc-back. Equipment which is subject
> to wide ambient-temperature variations, such as military
> equipment, uses inert gas rectifiers such as the 3B28 or 4B32.
> These tubes can be operated in ambient temperatures
> from -75C to +90C, which is frequently a necessary feature.
> The tube life of the inert gas rectifier, however, is only
> about one-third the tube life of an equivalent mercury-vapor
> rectifier...."
>

Date: Wed, 21 Jun 2000 13:28:13 -0700
From: Arden Allen <gumbear@pacbell.net>
Subject: The case for transconductance testing (long)
To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <0FWI002SBU5ZIE@mta5.snfc21.pbi.net>
MIME-version: 1.0
Content-type: text/plain; charset=ISO-8859-1
Content-transfer-encoding: 8BIT

Toobyphiles;

No great revelation here but I never before have run into a clearer example of the difference between results obtained when testing a tube with an emission tester and transconductance tester. First, what led up to this event:

My current short project is restoring a KLH 18 FM tuner. This is a cute little compact tuner built around '70 using all discrete SS thingies. It's main malady was the lubricant on the tuning cap wipers had turned to varnish and reception would cut in and out while tuning. I applied drops of acetone on the wipers and kept tuning back and forth untill the tuner became operational across the FM band. Then I liberally applied Craig 260NP contact grease on the wipers and bearings. A little 3-IN-1 Electric Motor Oil on the cap's planetary drive shaft and tuning was smooth as satin. Some GC De-Ox-Id on rotary switch contacts, Caig MCL on the stereo volume control elements and 3-IN-1 on all shafts and the tuner was working almost as good as new. The dial calibration was off by about 10 MHz on one end and the tuning in of a station seemed a bit asymmetrical. Looks like alignment is in order.

I dragged out my Boonton 202B FM generator and Tektronix 503 'scope (BA relevance) and lit them off and took a break to allow them to warm up (of course!). My break turned into a nap and when I returned to my workbench a few hours later I discovered that my 503 had no trace. "Hell, no high voltage I'll bet! I hope it isn't the NOS high voltage transformer I had to install to restore the scope!!" Out came the Heath V-7A (more BA relevance) with high voltage probe and sure enough, no HV. "Drat!" (well estableished BA relevant expletive). Having been through this a couple of times before the nest thing I did was take a gander at the 6DQ6 power oscillator and, sure enough, it had red plates. The oscillation was quenched to death by an overload and the tube was just passing DC with zero percent plate efficiency. Visual inspection of the 5642 high voltage rectifier diode showed blackening around the periphery of the plate. The diode obviously took an overload for a while. "Poor tubes", I muttered. After some resistance checking with one of those numeric readout meters (they float!) the problem turned out to be the 503's Achilles heal, the CRT heater winding on the power transformer. It was shorted to the adjacent B+ winding. This is the third 503 that has had this problem for me. The repair is to install a Stancor P8190 5000 volt test filament transformer and all will be well.

I wondered how bad off the 6DQ6 was now, it didn't seem to look too bad. Out came my B&K 606 emission tester. The tube registered 100%, way up in the green. Possibly the tube is still good enough to continue serving. After preparing the scope for the installation of a filament transformer I temporarily installed a Stancor P6134 which can get by for a while because of its 3000 volt RMS test rating. I plugged in the 6DQ6 and fired up the scope and the HV slowly came up and drifted up to about 2200 volts and went no further. Perhaps the sweep tube had lost too many bristles! In went a NIB 6DQ6 and the HV jumped up to the 3KV regulation point and all appeared normal.

Never (because of my compulive nature) satisfied with first indications when faced with the tube "goodness" paradox I dragged out my TV-7 and another NIB 6DQ6 (I have a good stock of these tubes because I own three 503's). All tubes read way up in the green on the emission test data gives a 30 for the reject limit.

This story illustrates for me some significant differences about tube applications and designs. A 6DQ6 is a high perveance cathode power amplifier designed for sweep amplifier use. A sweep tube to work efficiently needs to maintain a high power gain over a wider range of plate currents, much more so than an audio power amplifier operating class B and even more than what is required for a class C RF power amplifier! A class A audio power amplifier is still making acceptable amounts of sound when testing below reject while this 6DQ6 can't make the grade as a CRT HV supply power oscillator while still passing even on a transconductance test. The reason the nearly flat 6DQ6 reads like a new tube on an emission test is because of that huge cathode that is required for high perveance. The big cathode of a weakened sweep tube is still gushing a cloud of electrons and the emission test places such little demand for cathode current that the tester is given a snow job of electrons. The transconductance tester requires the tube's plate current to swing up to some value that approximates the way the tube is designed to be used. A steady state plate current class A receiving amplifier tube such as a 6AU6 has no great plate current swing requirements and the results of emission and transconductance tests are more in agreement. As French BAists say, "vive la difference, mais vÈrifier!"

Arden Allen KB6NAX Vallejo, CA gumbear@pacbell.net

Date: Wed, 21 Jun 2000 13:42:29 -0700
From: Arden Allen <gumbear@pacbell.net>
Subject: The case for transconductance testing (long) -- correction

To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <0FWI00AGOUTHNV@mta5.snfc21.pbi.net>
MIME-version: 1.0
Content-type: text/plain; charset=ISO-8859-1
Content-transfer-encoding: 7bit

The fifth paragraph got messed up by the INSERT key being accidentally hit,
it should read:

..........All tubes read way up in the green on the emission tester. The
TV-7 data
gives a 30 for the reject limit.

Arden Allen   KB6NAX   Vallejo, CA   gumbear@pacbell.net

From: "Ed Sieb" <sieb@sympatico.ca>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: RE: 866 versus 3B28 Rectifier Tubes
Date: Wed, 21 Jun 2000 16:49:15 -0400
Message-ID: <LOBBJHOLOOHLIPLONIAFIELHCPAA.sieb@sympatico.ca>
MIME-Version: 1.0
Content-Type: text/plain;
     charset="iso-8859-1"
Content-Transfer-Encoding: 7bit

OK, This interesting discussion has led me to an obvious question:
Where does one find solid state replacements for 3B28's?

I have a large stock of 3B28's, enough for all my big rigs, but would
like to try some SS versions to see how they perform. Purely experimental,
of course; once I've observed and noted their performance, I'll definitely
put back the glass jobs. ;-)

Ed
VA3ES

From: thompson@mindspring.com
Message-ID: <001301bfdbc2$c7f7afe0$d61045cf@default>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: Re: 866 versus 3B28 Rectifier Tubes
Date: Wed, 21 Jun 2000 16:53:39 -0400

United Electronics sells them (they were $40 three years ago). They are
North Jersey. There was a record in the boatanchors
archives as they also sell most tubes.   I know I listed them in the Amateur

Radio Mail Order Catalog and Resource Directory
(ARRL publication 5242) still being sold by ARRL. ARRL also has them in
their members only web page vendors list.   Sales manager was a very
responsive lady.   Sri away from home and no access to the info until next
week.
They are also sold at Hamfests (Typetronics had them two years ago). I
bought a spare set in 1994 for $10.
Dave K4JRB

> OK, This interesting discussion has led me to an obvious question:
> Where does one find solid state replacements for 3B28's?
>
> I have a large stock of 3B28's, enough for all my big rigs, but would
> like to try some SS versions to see how they perform. Purely experimental,
> of course; once I've observed and noted their performance, I'll definitely
> put back the glass jobs. ;-)
>
> Ed
> VA3ES
>

Date: Wed, 21 Jun 2000 17:56:41 -0400
From: "Andrew E. Howard, Sr." <sweetbay@compuserve.com>
Subject: Need "S" Meter for 75A3
To: Old Tube Radios <boatanchors@theporch.com>
Cc: "LIST, POST BOATANCHORS" <BOATANCHORS@theporch.com>,
   "LIST, POST HALLICRAFTERS" <hallicrafters@qth.net>,
   "LIST, POST VINTAGE RADIO" <vintage-radio@qth.net>
Message-ID: <200006211756_MC2-A99F-1FF4@compuserve.com>
MIME-Version: 1.0
Content-Transfer-Encoding: quoted-printable
Content-Type: text/plain;
      charset=ISO-8859-1
Content-Disposition: inline

Hello to all,

Trying to restore a questionable 75A3. The set was dropped at one time
although it has a new case that is not damaged. The S meter was damaged a=
nd
I have spent several hours trying to repair it. No hope since the spring =
is
broken.

Does anyone have a spare from a parts set? I am assuming that the meter
from a 75A2 would work as well. The movement appears to be a 0-1 ma. =

Thanks and 73,

Andy, WA4KCY

~~~~~~
Andrew E. (Andy) Howard, Sr., WA4KCY
133 Cartbody Road
Carrollton, Georgia 30116
Telephone 770-832-0202
AMI #9 - Southeastern Division Director
Web Page URL -
http://ourworld.compuserve.com/homepages/sweetbay
<><
~~~~~~ =

Keeper of the Hallicrafters SX-88 Owners List

To: Old Tube Radios <boatanchors@theporch.com>
Date: Wed, 21 Jun 2000 16:59:24 -0600
Subject: RS-6
Message-ID: <20000621.165935.274.7.saipan59@juno.com>
MIME-Version: 1.0
Content-Type: text/plain
Content-Transfer-Encoding: 7bit
From: saipan59@juno.com

As Al Klase already mentioned, I have a bunch of details on the RS-6
on my web page (and also about similar sets).
http://www.geocities.com/saipan59/
Other comments below (responding to Marty's post):

>The GN-58 generator is a rarie & is probably worth $100 to a RS6
>maven.

I think the value is about right, but I wouldn't call it "rare". Fair
Radio
has had most of the pieces in the last couple of years.

>It's probably the predecessor to the GRC109. Too many "just alikes."

The "functional" predecessor to the GRC-109 is the RS-1 (they're
essentially the
same). The time-order for the sets we're talking about is:
RS-1, (other stuff, unnamed), RS-6, (other stuff, unnamed), GRC-109,
GRC-109A.

> HEY THE ONLY DOCUMENTED USE OF THE RADIO WAS IN THE SURVIVAL SLEDS
>IN B45S, B47S, & 1ST B52S - I have a bud that worked @ SAC HQ in Colo
>Springs that'll attest.

No, no, no. This keeps coming up. The RS-6 was *developed* and *used*
by the CIA *first*, but it was not real popular compared to sets like
the RS-1. SAC seems to have bought and used the vast majority of them.

> Altho the gab is endless, only AF use on early 1-way mission jet
>bombers is all that's documentable.

As far as actual "paperwork" that we can find, that's true.

> Why would a "spy" want to carry that wild-hare mess of fragile parts
>in a buncha trenchcoat pockets to some "assignment?" No kiddin'
>really researched the "agency" & contact says "nevah heard of it."

Sorry, but your contact doesn't have access to the right info.
The Agency certainly *has* heard of it, and used it.

Pete

____
YOU'RE PAYING TOO MUCH FOR THE INTERNET!
Juno now offers FREE Internet Access!
Try it today - there's no risk! For your FREE software, visit:
http://dl.www.juno.com/get/tagj.

Date: Wed, 21 Jun 2000 16:10:04 -0700
From: Arden Allen <gumbear@pacbell.net>
Subject: The case for transconductance testing (long) -- more correction
To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <0FWJ005RN1NYIG@mta6.snfc21.pbi.net>
MIME-version: 1.0
Content-type: text/plain; charset=ISO-8859-1
Content-transfer-encoding: 7bit

*&^%$# computer tricks! Thanks Scott.

The fifth paragraph got messed up by the INSERT key being accidentally hit,
it should read:

..........All tubes read way up in the green on the emission tester. The
two NIB 6DQ6's read in the high 70's and low 80's on the TV-7, the
tormented tube read 42. The TV-7 test data gives a 30 for a reject limit.

Arden Allen   KB6NAX   Vallejo, CA   gumbear@pacbell.net

```
Message-Id: <4.2.2.20000621195535.00ca9730@mail.sover.net>
Date: Wed, 21 Jun 2000 20:01:05 -0400
To: Old Tube Radios <boatanchors@theporch.com>
From: Michael Crestohl <mc@sover.net>
Subject: FS Measurements Corp Grip Dip meter
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"; format=flowed
```

Hi fellas!

I have a nice MEASUREMENT CORP Model 59 Megacycle Meter with all the 7 coils ranging from 2.2 Mcs up to VHF. It is very clean. I just don't use it anymore.

I'd like $100.00 plus UPS for it.

I also have another one but minus the coils and tubes. It is in average condition - nothing special in other words. The paper dial on the control head has deteriorated badly. It is essentially a parts unit. I'll let it go for $50.00. I'll give first preference on the parts unit to the buyer of the complete unit.

If interested please reply by e-mail.

Cordially,

Michael Crestohl
mc@sover.net

```
Message-ID: <000901bfdbea$973004c0$185f62d8@naxs.com>
From: "Barry L. Ornitz" <ornitz@tricon.net>
To: Old Tube Radios <boatanchors@theporch.com>
Cc: <thompson@mindspring.com>
Subject: Re: 866 versus 3B28 Rectifier Tubes
Date: Wed, 21 Jun 2000 21:38:37 -0400
MIME-Version: 1.0
Content-Type: text/plain;
     charset="iso-8859-1"
Content-Transfer-Encoding: 7bit
```

Dave Thompson, K4JRB, wrote:

> In both the 866 type and the 3B28 you needed a short warm
> up to get the tubes ready for HV.... not so with the 3B28

> SS replacement and the SS version puts out 100+ more volts which make the 3-400/3-500 run closer to their 3500V optimum.

This is unusual...

Gas-filled rectifiers behave quite differently than do vacuum rectifiers. Mercury vapor rectifiers generally have about 10 volts forward drop and a low effective resistance, usually less than 5 ohms (until emitter saturation occurs which often destroys the tube).

Xenon types, like the 3B28, usually have a slightly higher voltage drop or around 12 to 15 volts, and have a similar low effective resistance.

As an approximation to their true exponential response, a solid state rectifier can be modeled as having anywhere from 0.7 to 1.5 volts forward drop per junction and a very low resistance. [For a typical 1N4007 diode, the forward drop is approximately 0.95 volts and the forward resistance is approximately 0.02 ohms. To get the 10 KV PIV rating, 10 such diodes would be needed in series giving 9.5 volts forward drop and 0.2 ohms forward resistance.]

To get an extra 100 volts merely by substituting a silicon replacement (such as the 10 1N4007 diodes in series) seems rather unlikely as this would mean the gas-filled tubes would have a plate resistance of approximately 100 ohms, a value much higher than it should be.

Is it possible RF chokes or low value wirewound resistors were used in series with the plate leads, a common practice with mercury vapor tubes to reduce hash, and these were removed when going to solid state rectifiers? The only other possibility I can think of is that a capacitor input filter was used with very high values of capacitance, something the gas-filled rectifiers were not rated to handle. I doubt this is the case as Henry usually did an excellent job of under-rating its components.

As long as the current and voltage rating are matched, silicon rectifiers are usually a "drop-in" replacement for gas-filled rectifier tubes, with no major change in output voltage expected (unlike high vacuum rectifiers).

73, Barry L. Ornitz   WA4VZQ   ornitz@tricon.net

Message-ID: <39516EA5.A857F951@ix.netcom.com>
Date: Wed, 21 Jun 2000 20:40:53 -0500
From: "David L. Stinson" <arc5@ix.netcom.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: 5,000 WATT SHIP TO SHORE TRANSMITTER NEEDS HOME
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Reference Web Page:
http://www.arc5.com/new2/marc.htm

I've accepted a new job and am moving from the Austin area.
I can't take everything with me.
I have a 5000 watt Marconi transmitter that covers
20-29 MC that needs a new home.
Most of the expensive tubes ARE INCLUDED.
I will give this transmitter to anyone who will come
and get it at my home in North Austin in the next few days.
Preference to anyone who will give me their
word that they will at least attempt to
resurrect it. I have another that I'm going
to take along if I have to drag it
behind a mule ;-). So you'll have someone
to talk with about it. There is also a gentleman
in New Orleans who is working on a quad of these
great transmitters.

Although it's big, it isn't a complicated machine.
You could put it on other bands or be the biggest
gun on 10 meters. I have documentation and diagrams
on this very interesting 1945 transmitter.
You'll need a strong back and a small flatbed
or a pick-up, furniture dolly and tie-downs.
Otherwise, I will be forced to send it to
the land fill.

73 DE Dave Stinson AB5S
arc5@ix.netcom.com

Message-ID: <001301bfdbf0$d3dbe1e0$185f62d8@naxs.com>
From: "Barry L. Ornitz" <ornitz@tricon.net>
To: Old Tube Radios <boatanchors@theporch.com>
Cc: "Arden Allen" <gumbear@pacbell.net>
Subject: Transconductance versus Emission Testing
Date: Wed, 21 Jun 2000 22:23:16 -0400

MIME-Version: 1.0
Content-Type: text/plain;
charset="utf-7"
Content-Transfer-Encoding: 7bit

Arden Allen, KB6NAX, presented an example of a tube which passed emission testing, but failed transconductance testing. While this is certainly possible, I tend to disagree that emission testing is useless for power tubes. A good emission tester will test the tube at cathode currents approximating normal operation of the tube, i.e. much higher in a power tube than in a small receiving tube.

The key is to understand what determines a tubes transconductance, and what can make it change. Basically the tube geometry is the main determining factor for transconductance. Bend the grids out of shape by dropping the tube, and the transconductance will certainly change. Of course, this is not very likely with a glass envelope tube+ACE- But I could see it happening with a 4CX250B which has a fragile grid structure yet has a pretty rugged shell.

The second determining factor is the tube emission, and in +AF8-normal+AF8-operation+AF8- this is the only factor that degrades throughout the life of a tube.

Arden's case, however, cannot be considered normal operation of the tube. I suspect the screen grid may have been seriously overloaded and heated to the point where it may have changed shape. Likewise, under such high stress conditions, oxide material from the cathode can boil off depositing itself on the control grid. The first situation can sometimes be seen as reduced (or increased) screen current, while the second often results in high values of grid leakage or internal shorts. Arden did not note whether he did any short circuit testing of the tube or whether positive grid current was seen with negative grid bias.

I would consider this case one in which the emission tester was being used beyond its capabilities. Consider a tube with an open connection between the grid pin and the actual grid. Such a tube would have zero transconductance yet test perfectly on an emission tester because the grid intercepts so little of the total cathode current.

Naturally a transconductance tester gives more information about a tube than can an emission tester. But for power tubes, transconductance testers can show good when a tube has poor power output in an actual circuit. The key is to understand the limitations of whatever tester you are using.

Other than when bulk testing of hamfest tubes, or sometimes when testing the tubes of a newly acquired radio, I never use my two Hickoks. For troubleshooting, I prefer to make in-circuit measurements to determine if a tube needs replacing. Part of this is personal style and other people may do things differently. For example, the first pieces of test equipment I grab are a scope and the schematic.

73, Barry L. Ornitz WA4VZQ ornitz+AEA-tricon.net

From: thompson@mindspring.com
Message-ID: <007801bfdc02$0e897d00$0e5a56d1@default>
To: Old Tube Radios <boatanchors@theporch.com>
Subject: 10AM open at 0300 to 0400 (11PM to midnight EDT) tonight
Date: Thu, 22 Jun 2000 00:23:36 -0400

I listened across 10 meters at 2300Z and just a few Short skip signals on SSB and no AM. I came back at 0300Z because SF was 178, but the A and K index were low. A few strong W6 and 7 and plenty of strong W5's on short hop from Atlanta metro. Several VK's were 5/9 on SSB. Went up on AM and on 29.0 VK2BA, David was 5/9+10 but in QSO with another W4. He went to lunch and I moved up to 29.010 mcs and proceeded to work several 6's and 7's all running low power converted CB rigs. Signals were between 5/5 and 5/7. VK2BA broke in at the end of the run and still was 69+10 and gave me 5/8. Boy his 813 rig sounds good on the 6kcs position on the HQ170A.

I decided to try my little 3-400 amp with my AF-67 and HQ170A station and ran 250W out on peaks AM linear. I get out OK with 30W out with the AF-67 but the amp boost was quite good. I plan to move my AM station to hook it up with my Svetlana modified NCL-2000 so I can get 350 or 400W out. No need for this much power on 10 but will help on 75. I also improved the AM station by using the Dow Key Electronic switch I got from NT0V. Works great with the AF-67 as pushing the PTT switch puts RF on the antenna connector which mutes the receiver and switches the antenna to the AF-67. No more sprongggggg of the old Dow key 120V relay!

CU on 10AM

Dave K4JRB

Message-ID: <39519F0E.644EF0F9@sourceoneinternet.com>
Date: Wed, 21 Jun 2000 23:07:26 -0600
From: Wally Gibbons <rockwall@sourceoneinternet.com>
MIME-Version: 1.0
To: Old Tube Radios <boatanchors@theporch.com>
Subject: NC300 Question
Content-Type: text/plain; charset=us-ascii
Content-Transfer-Encoding: 7bit

Greetings,
Thanks for all the comments on the receiver discussion question. I've dived into the 300 to see why 11/10 meters on the rx are bad. In probing around, I've noticed that the local oscillator on 15/11/10 meters seems to run at half frequency. I get around 9 mhz on 15, 12 mhz on 11, and 13 mhz on 10 meters. It's impossible to set the trimmer to get the dial alignment correct on 10 meters, trimmer is at full capacity. Is the local oscillator really receive frequency minus first if, divided by two?

One other oddity, the antenna coils on the two band show discoloration on the RF amp grid windings, but the two turn antenna coupling links are fine. It's a puzzler. Anyone seen this on their 300?

Thanks....

Wally Gibbons-WB7ASQ
North Logan, Utah

Message-Id: <3.0.5.32.20000621220343.007a0560@pop.igc.org>
Date: Wed, 21 Jun 2000 22:03:43 -0700
To: Old Tube Radios <boatanchors@theporch.com>
From: Dick Dillman <ddillman@igc.org>
Subject: 500Kc Lives!
Mime-Version: 1.0
Content-Type: text/plain; charset="us-ascii"

We put the 500Kc transmitter at KPH on the air today. Actually, the transmitter was the easy part. The 5kW dual frequency (500/426Kc) Henry has been ready for some time. The antenna was the hard part.

At one time the 500Kc antenna at KPH was a 300ft. tower complete with a beacon on top. But that tower developed a pronounced kink. The kink and advancing rust dictated that it be felled. But what would be its replacement? Warren Reese/WB6TMY, transmitter engineer at the station, answerd the question: a Marconi T antenna could be installed at low cost.

MCI, owners of KPH at the time gave permission to proceed.

The feeder for the 500Kc Marconi T at KPH rises 100 ft. straight up from the tuning house. There it joins the T part which is about 900 ft. long. The antenna is supported by telephone poles at both ends and another telephone pole at the tuning house to support the center.

About a year ago the cable supporting one side of the T parted. Our job this weekend was to re-erect the antenna. Tall ship riggers from the Hyde Street Pier climbed the poles and replaced the rusting galvanized support wires with new stainless steel. All did not go well. The antenna came down twice. Once due to a parted splice and once when the center support cable let go. But eventually, after two day's work, the antenna was back in place.

This afternoon, the job completed, we retired, hot and sweaty, to the transmitter building. As tired as we were I was not prepared to leave until we had put out a signal on 500Kc. The practical reason was that we needed to know if all the systems were still intact. But of course I craved to send a few test signals on that hallowed frequency.

With Tom in the tuning house and me in the control room in the transmitter building I threw the switch to QSY from 500 to 426Kc. Tom reported a satisfying "clunk" of relays engaging in the tuning house. I threw the keying switch on the newly constructed control panel and pressed the key. I was rewarded by a pinned S meter on the station receiver. I sent a few Vs and "test de KPH" and both 426 and 500Kc. Alas, no one answered.

But perhaps they will on July 12th, the event for which we are doing all this work. The 12th is the first anniversary of the last commercial Morse message in North America. We will be doing a commemorative broadcast from KPH on that date on both HF and MF frequencies. Ful information will be posted here soon. Listen in if you can.

Vy 73,

Dick/"RD

Dick Dillman, W6AWO
Chief Operator at K6KPH of the Maritime Radio Historical Society
Collector of Heavy Metal:
Harleys, Willys and Radios Over 100lbs.

Date: Wed, 21 Jun 2000 22:39:35 -0700
From: Arden Allen <gumbear@pacbell.net>
Subject: Re: Transconductance versus Emission Testing

To: Old Tube Radios <boatanchors@theporch.com>
Message-id: <0FWJ00ICMJP3ZF@mta5.snfc21.pbi.net>
MIME-version: 1.0
Content-type: text/plain; charset=Default
Content-transfer-encoding: 7bit

Hi Barry;

> ......I suspect the screen grid may have been
> seriously overloaded and heated to the point where it
> may have changed shape. Likewise, under such high stress
> conditions, oxide material from the cathode can boil off
> depositing itself on the control grid

In the 503 circuit the screen grid is used to control power output so there is a screen dropping resistor which gets yanked down by the control loop amplifier, the pentode section of a 6BL8. I checked grid emission on the B&K and it was negligible. Unfortunately today is garbage collection day and the tube was carted off at 7 AM. Can't do a necropsy to determine if the screen was wrecked. I agree with you that an emission test, if properly done, is a good test but I don't think the econo-testers do a good job on power tubes. Also, the cheap tester heater voltages are low on power tubes because of the puny filament transformers used. Yes, the in-circuit test of a tube is the final arbiter of performance. My tester for flea market tubes is a pair of good eyes but that is not perfect either!

Arden Allen   KB6NAX   Vallejo, CA   gumbear@pacbell.net

End of BOATANCHORS Digest 2931
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